

6D
CA83-06/30/83
PRD 980594709

TECHNICAL PRESENTATION
ON SITE CHARACTERIZATION AND
GROUND-WATER MONITORING PLAN

to

ENVIRONMENTAL PROTECTION AGENCY
REGION II

June 30, 1983

PONCE WASTE FACILITY PROJECT
Ponce, Puerto Rico

Cecos International, Inc.
RECRA Research, Inc.
Law Engineering Testing Company

LAW ENGINEERING TESTING COMPANY
PONCE WASTE FACILITY
PROJECT ORGANIZATION

PROJECT PRINCIPAL - GERALD H. FOGLE, P.G.,
ASSISTANT VICE-PRESIDENT

PROJECT MANAGER - JAMES D. GUSTIN, P.G.

SENIOR TECHNICAL REVIEWER - JAMES R. WALLACE, Sc.D., P.E.,
ASSISTANT VICE-PRESIDENT

PROJECT DESIGN ENGINEER - GLENN N. COFFMAN, P.E.

PROJECT GEOTECHNICAL
ENGINEER - L. DAVID WHEELLESS, P.E.,
ASSISTANT VICE-PRESIDENT

PROJECT GEOLOGIST/
GEOPHYSICIST - ROBERT M. WHITE, P.E., P.G.

PROJECT GEOHYDROLOGIST - BRUCE L. JERNIGAN, P.G.

6D
CA83-06/30/83

PRD 980594 709

June 20, 1983

Mr. Joseph Torlucci
Region II Coordinator
Ertec Atlantic, Inc.
15 Campus Drive, Suite 100
Somerset, NJ 08873

Re: EPA Contract 69-01-6515
Work Assignment R02-002

Dear Mr. Torlucci:

I am transmitting to you a groundwater monitoring plan for CECOS International to be reviewed as per John Jimenez.

Mr. Jimenez has requested that you submit your comments to him on Wednesday, June 22, by telephone. Please speak to Mr. Jimenez for more details.

Sincerely yours,

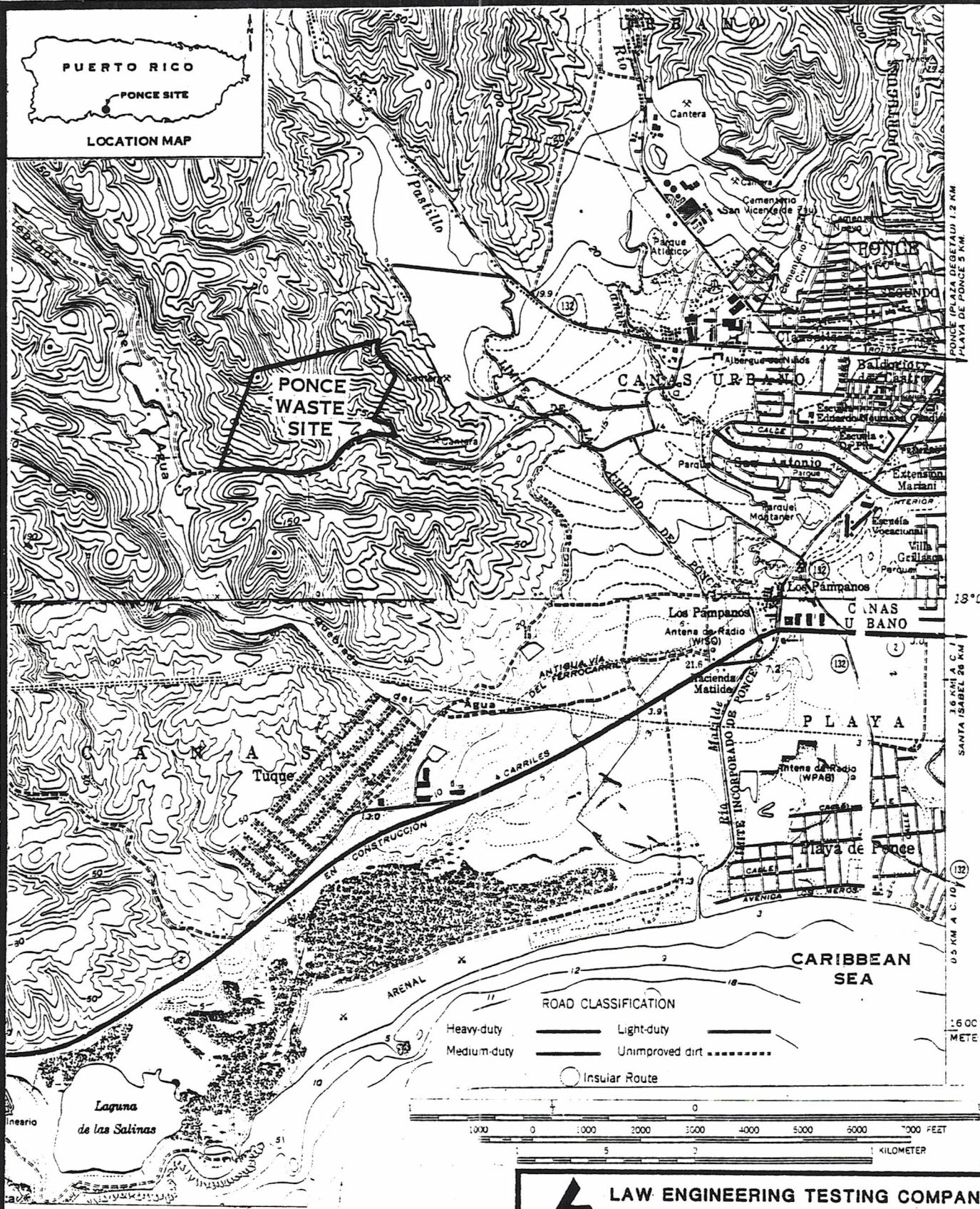
Barbara Kropf
Environmental Protection Specialist
Solid Waste Branch

Enclosure

bcc: John Jimenez, 2AWM-SW ✓

LAW ENGINEERING TESTING COMPANY
PROJECT PARTICIPATION
PONCE WASTE FACILITY

- SITE CHARACTERIZATION
 - GEOLOGY
 - GEOHYDROLOGY
 - SEISMICITY
 - GEOTECHNICAL
- GROUND-WATER MONITORING
 - PLANNING
 - WELL INSTALLATION
 - AQUIFER TESTING
- FACILITY DESIGN (DESIGN CRITERIA VIA RECRA RESEARCH)
 - DRAWINGS
 - SPECIFICATIONS
 - CONSTRUCTION BID PACKAGES
 - DESIGN REPORTS
- PART B PERMIT APPLICATION TECHNICAL INPUT
 - SITE DESCRIPTION
 - FACILITY DESCRIPTION
 - GROUND-WATER MONITORING PLAN
 - CLOSURE PLAN
- CONSENT ORDER COMPLIANCE ITEMS
- CONSTRUCTION QUALITY CONTROL



BASE MAP FROM: U.S.G.S. PENUELAS (1964) AND
PUNTA CUCHARA (1964)
TOPOGRAPHIC QUADRANGLE MAPS


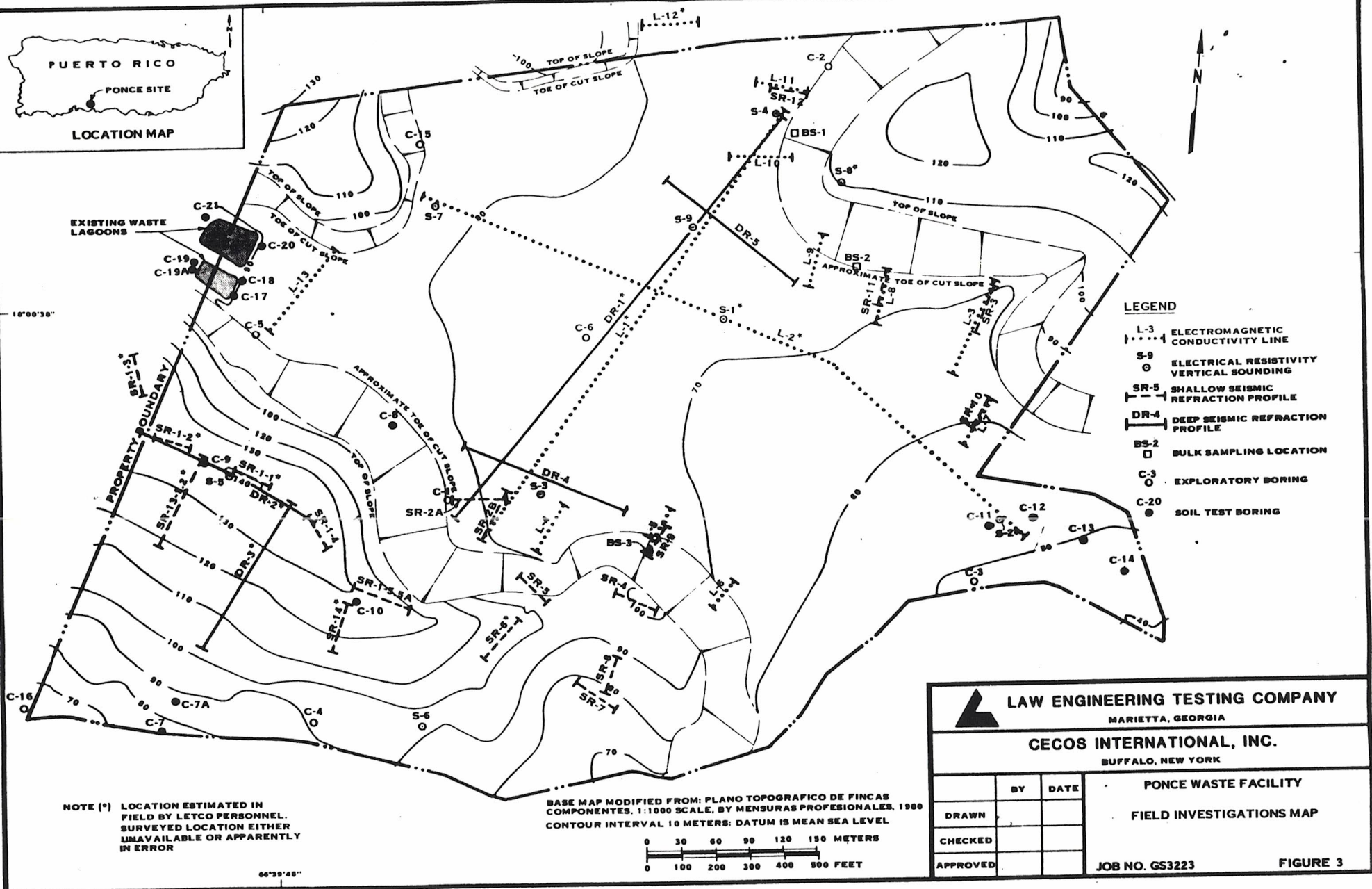
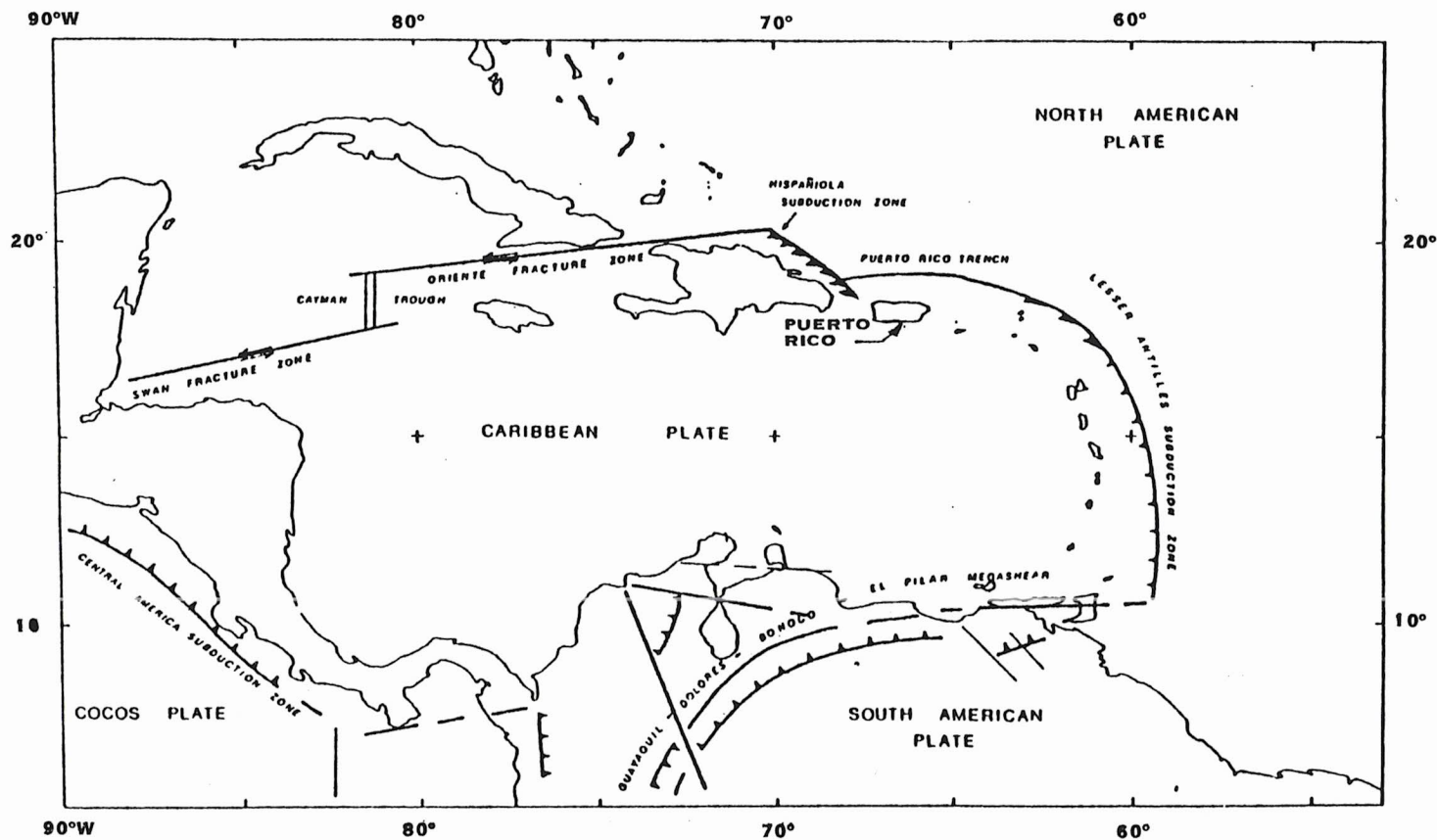
 LAW ENGINEERING TESTING COMPANY MARIETTA, GEORGIA		
CECOS INTERNATIONAL, INC. BUFFALO, NEW YORK		
DRAWN CHECKED APPROVED	BY 	DATE
PONCE WASTE FACILITY SITE LOCATION MAP		JOB NO. GS3223

FIGURE 1

A E R I A L

P H O T O G R A P H S





FROM: ASENCIO (1980), U.S.G.S. OPEN FILE REPORT 80-192



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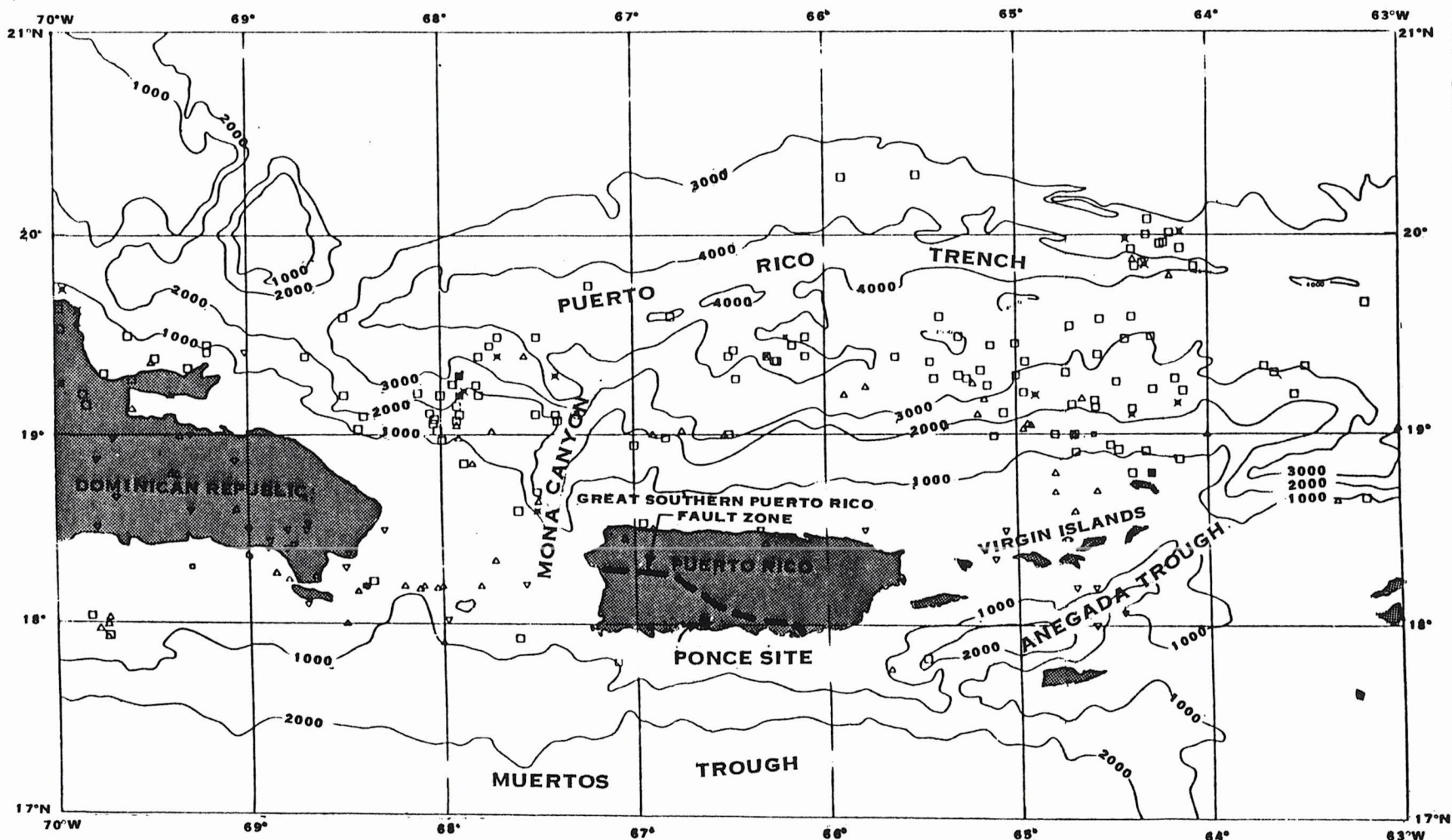
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PONCE WASTE FACILITY

REGIONAL TECTONIC MAP

JOB NO. GS3223

FIGURE



LEGEND

Puerto Rico Region Tectonic Zones and associated seismicity instrumentally recorded from 1964 to 1977. Symbols: X denotes epicenter at depth < 25 km, □ depth > 25 and < 50 km, Δ depth > 50 and < 100 km, ▽ depth > 100 km. Contour interval, 1,000 fathoms.

MODIFIED FROM: ASECIO (1980), U.S.G.S. OPEN FILE REPORT 80-192



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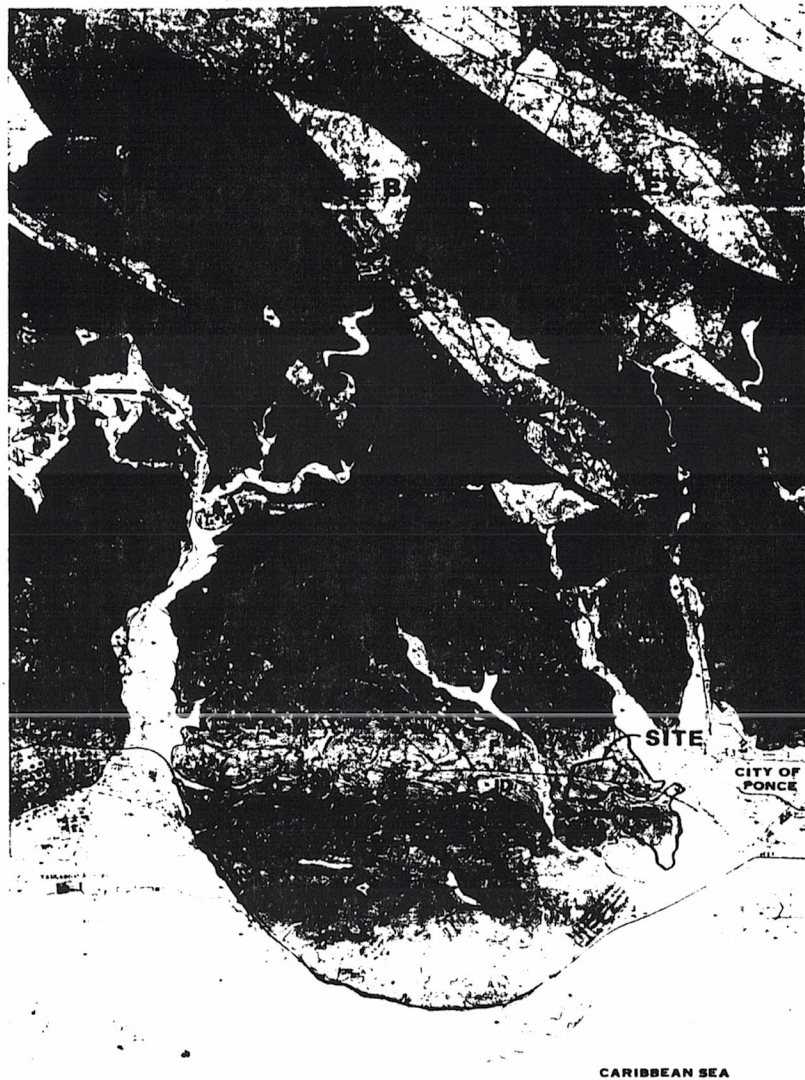
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PONCE WASTE FACILITY

**REGIONAL SEISMOTECTONIC
MAP**

JOB NO. GS3223

FIGURE 6




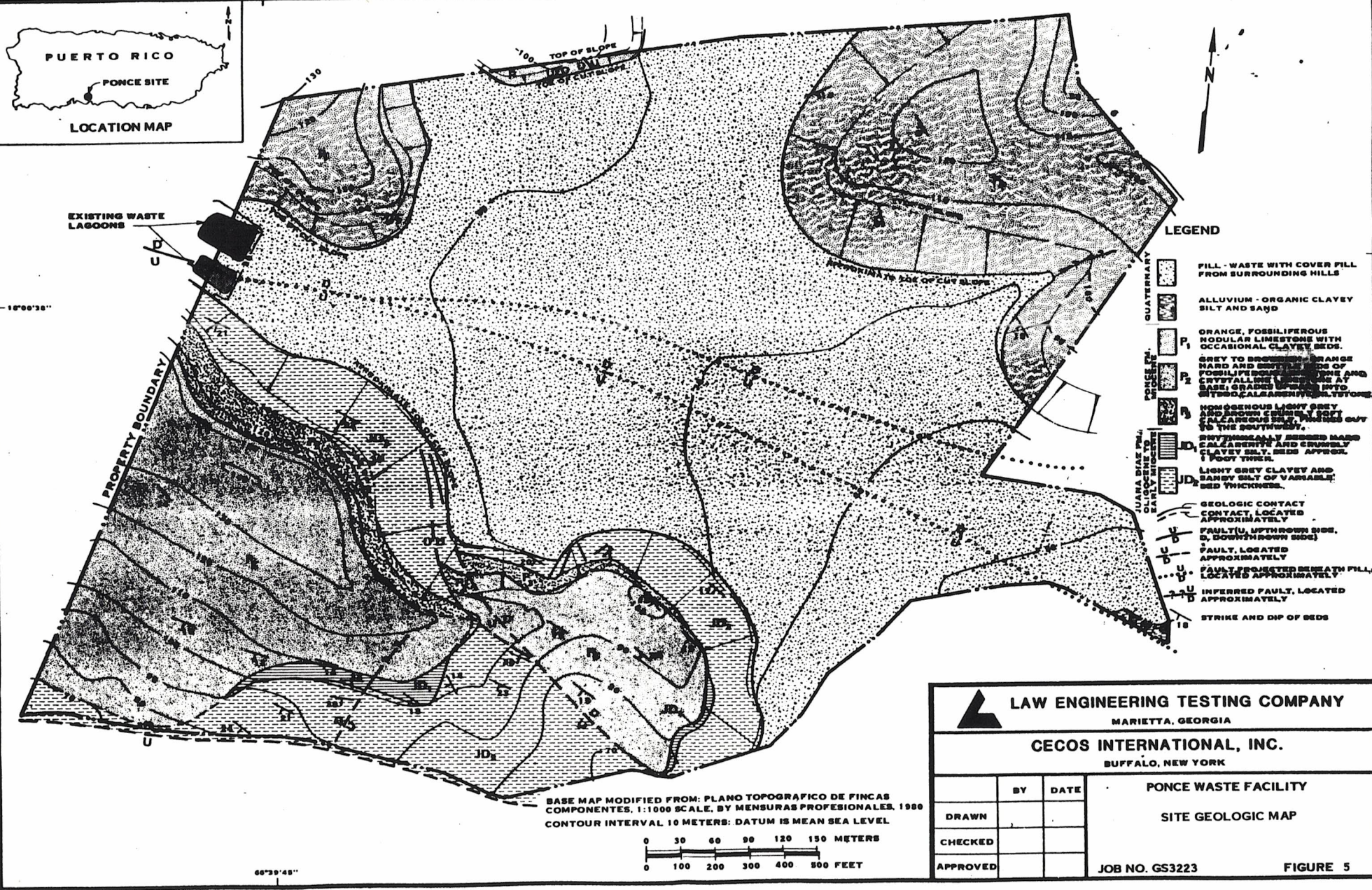
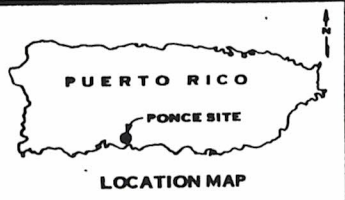
GEOLOGIC MAP OF THE PEÑUELAS AND PUNTA CUCHARA QUADRANGLES, PUERTO RICO
 by
 Richard D. Kradinowsky and William H. Monroe

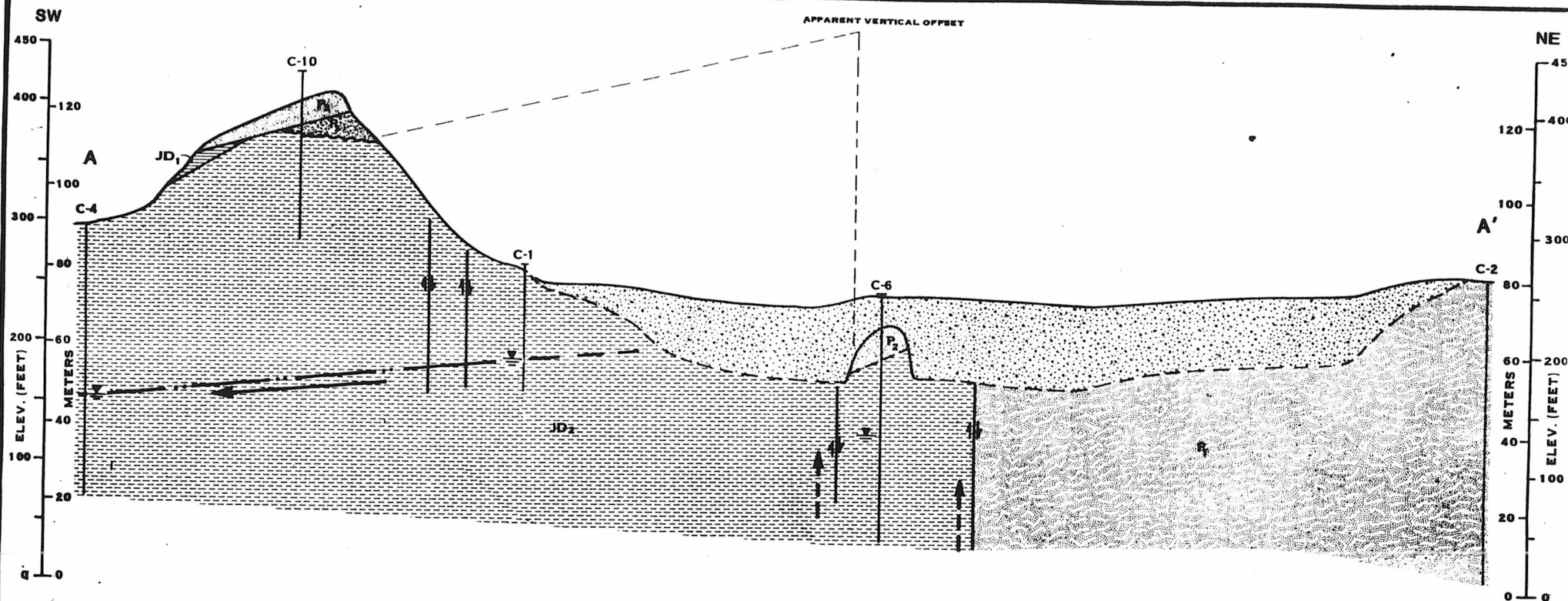


SOUTHERN CARBONATE PROVINCE	P - PONCE LIMESTONE JD - JUANA DIAZ FORMATION	ALLUVIUM	QUATERNARY
			MIOCENE
PRE - OLIGOCENE BASEMENT COMPLEX	IGNEOUS SEDIMENTARY ROCKS		OLIGOCENE / MIOCENE
			Eocene - CRETACEOUS










- Contact — Dotted where concealed; queried where inferred (contacts of Quaternary alluvial units are shown by a solid line by convention, placement ranges from assured to inferred)
- Fault — Long dashed where approximately located; short dashed where inferred; dotted where concealed; ball and bar on downthrown side, wrench fault and relative directions of movement shown by arrows; A, away from observer; T, towards observer
- Folds — Showing crestline or troughline, direction and amount of plunge if known and direction of dip of limbs; long dashed where approximately located; dotted where concealed
- Anticline
- Syncline
- Overturned syncline
- Bearing and plunge of small closely spaced folds
- Shear zone
- Dikes of unspecified composition
- Strike and dip of beds
- Inclined
- Vertical
- Horizontal
- Overturned
- Top determined from graded bedding or crossbedding
- Veins
- Cu Copper-bearing minerals
- Pb Lead-bearing minerals
- Zn Zinc-bearing minerals
- ⊙ Zones or beds of abundant *Crassostrea* sp.
- ▲▲▲▲▲ Conspicuous beds of Kgs in rock chiefly Kgsbl or Kgs
- Conspicuous beds of Kgsbl or Kgs in Ky
- +++++ Conspicuous beds of Ky in Kgsbl or Kgs

 LAW ENGINEERING TESTING COMPANY MARIETTA, GEORGIA			
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	BY	DATE	PONCE WASTE FACILITY REGIONAL GEOLOGIC MAP JOB NO. GS3223 FIGURE 4
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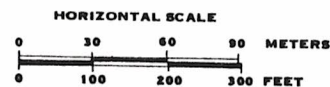
LEGEND

-  FILL-WASTE WITH COVER FILL FROM SURROUNDING HILLS.
-  P₁ ORANGE, FOSSILIFEROUS NODULAR LIMESTONE WITH OCCASIONAL CLAYEY BEDS.
-  P₂ GREY TO BROWNISH - ORANGE HARD AND BRITTLE BEDS OF FOSSILIFEROUS LIMESTONE AND CRYSTALLINE LIMESTONE AT BASE; GRADES UPWARD INTO INTERBEDDED CALCARENITE / SILTSTONE.
-  P₃ HOMOGENOUS LIGHT GREY AND BROWN CRUMBLY SOFT CALCAREOUS SILT. PINCHES OUT TO THE SOUTHWEST.
-  JD₁ RHYTHMICALLY BEDDED HARD CALCARENITE AND CRUMBLY CLAYEY SILT, BEDS APPROX. 1 FOOT THICK.
-  JD₂ LIGHT GREY CLAYEY AND SANDY SILT OF VARIABLE BED THICKNESS.
-  POTENTIOMETRIC SURFACE
-  GENERALIZED DIRECTION OF GROUND - WATER FLOW (DASHED WHERE INFERRED)
-  STABILIZED WATER LEVEL MEASURED IN PIEZOMETER

ASSUMPTIONS:

1. NO SIGNIFICANT HYDRAULIC CONNECTIONS EXIST ACROSS THE MAIN W-NW TRENDING FAULTS (NEAR BORING C-6)
2. LITHOLOGIES ENCOUNTERED IN THE VARIOUS BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS

NOTE: WHILE INDIVIDUAL TEST BORING RECORDS MAY BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS, GEOLOGIC STRATIFICATION SHOWN IS ESTIMATED BASED ON ACCEPTED GEOLOGIC PRINCIPLES AND PRACTICES.



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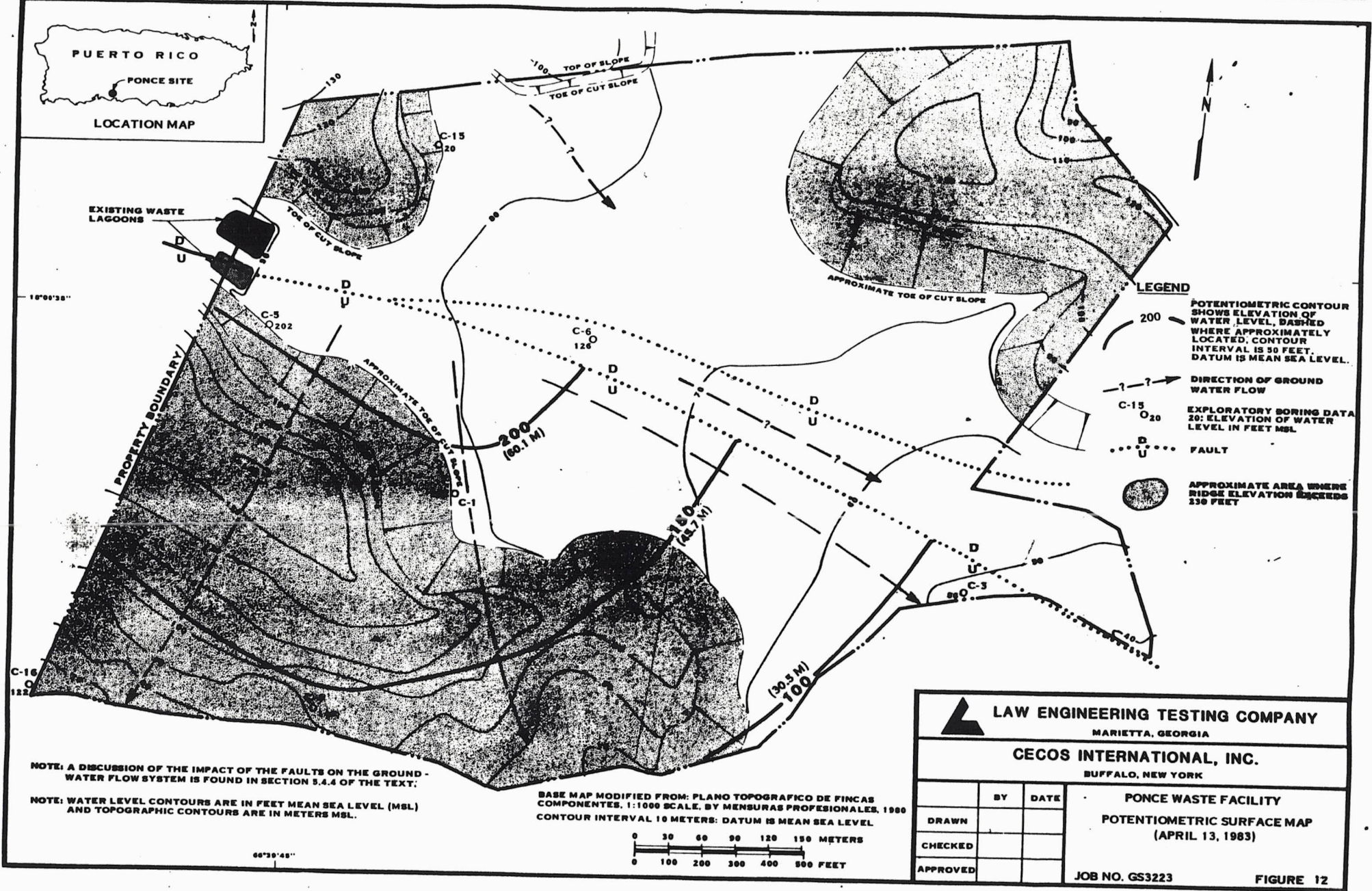
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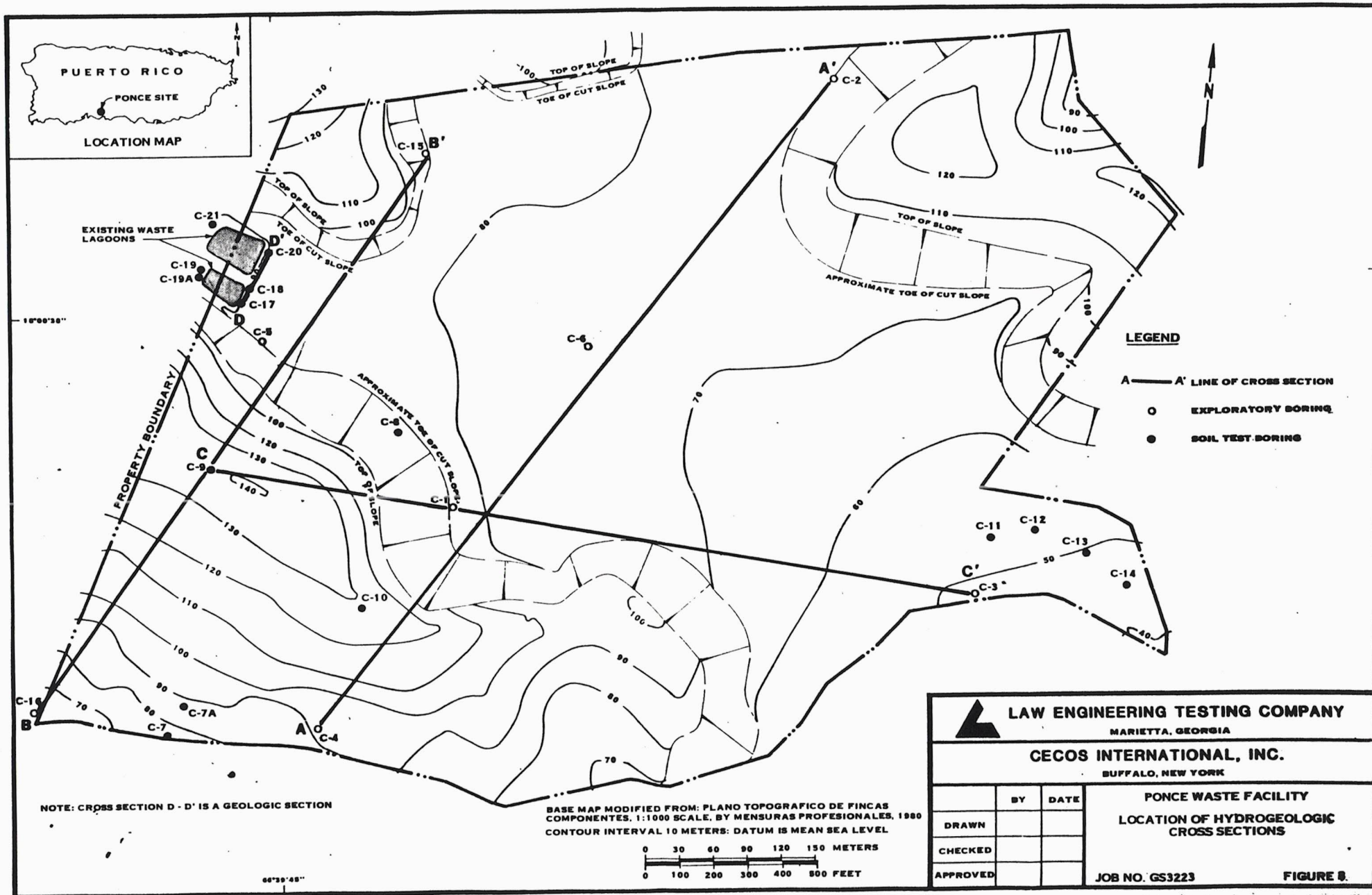
PONCE WASTE FACILITY

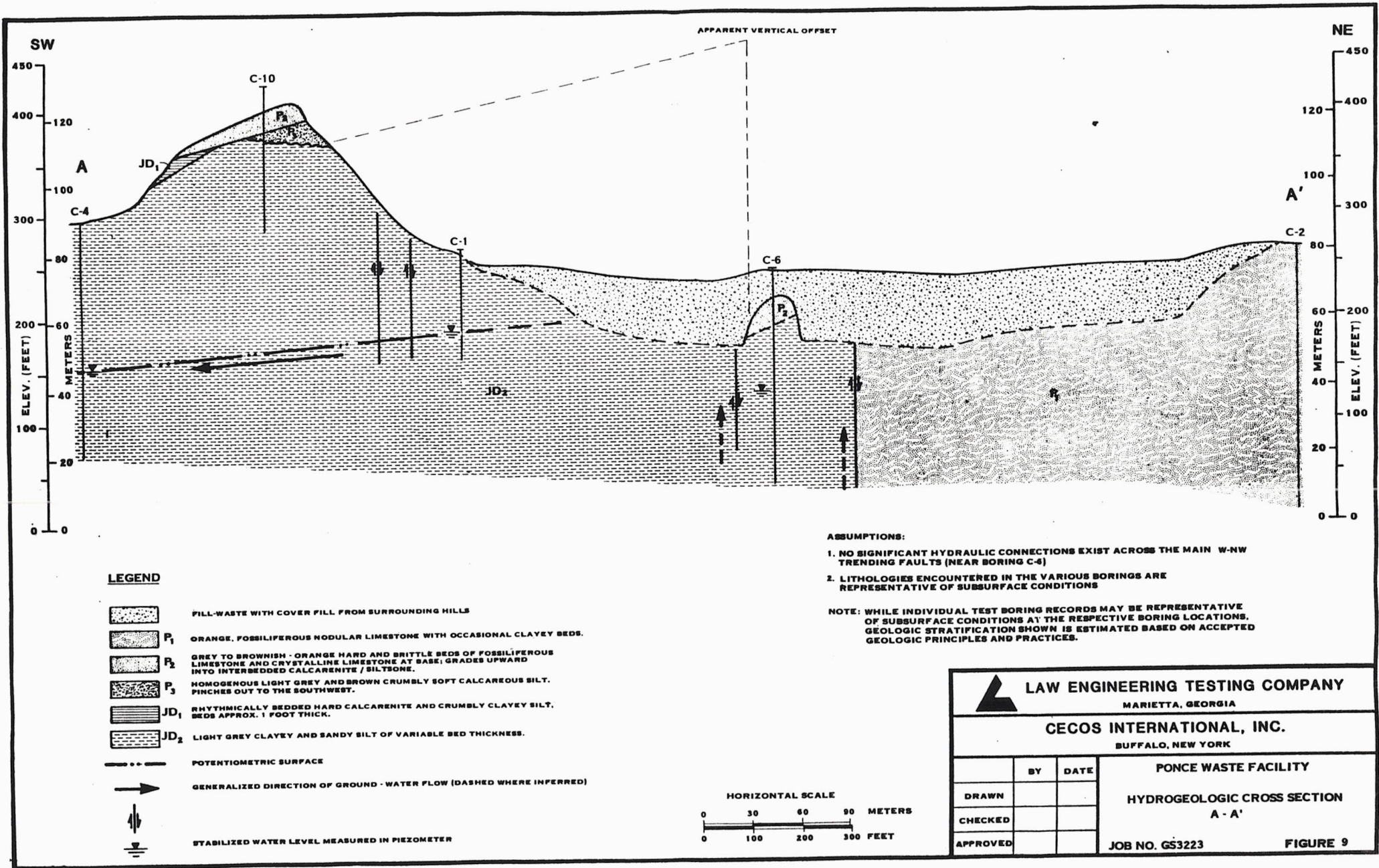
**HYDROGEOLOGIC CROSS SECTION
A - A'**

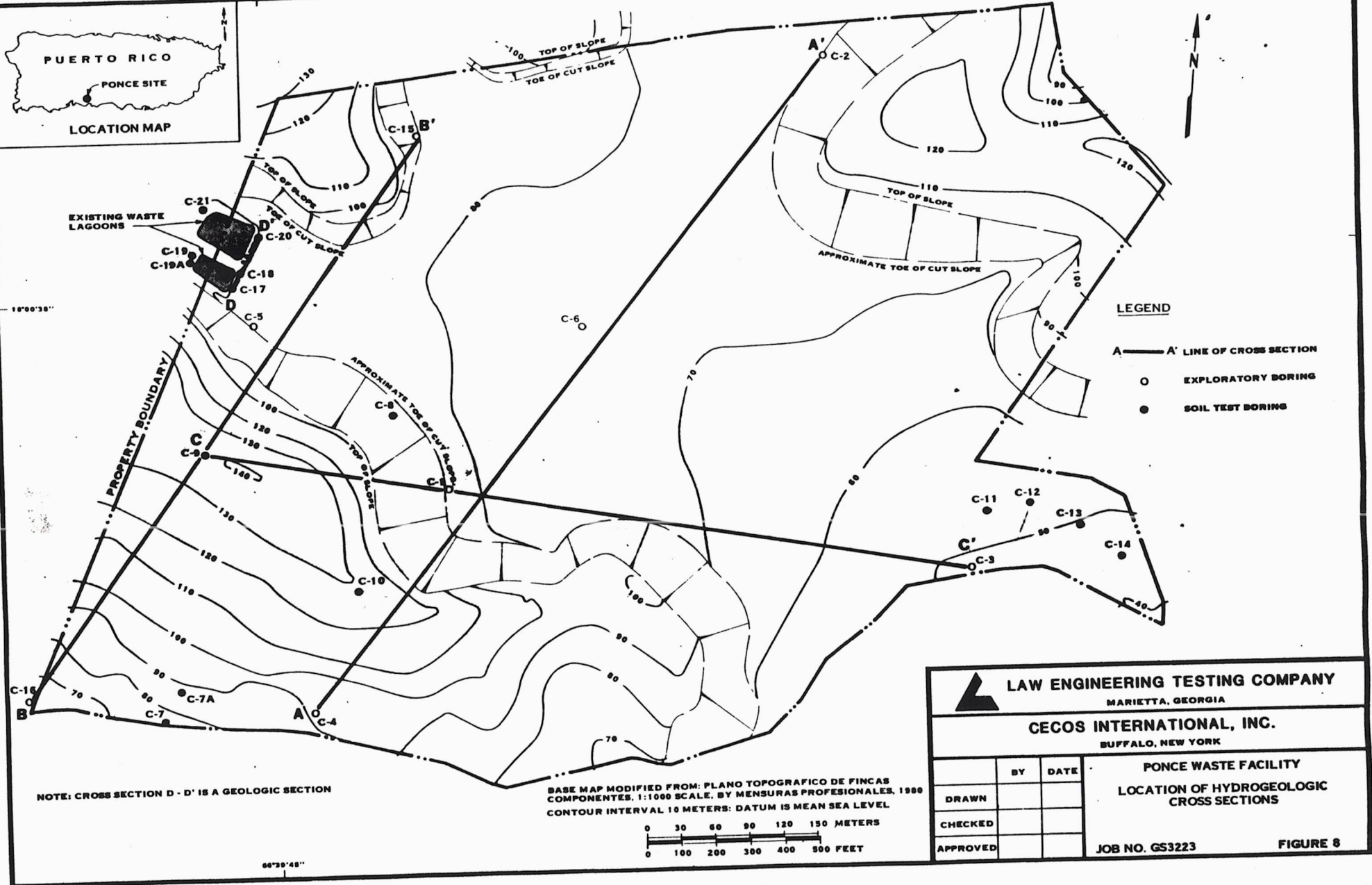
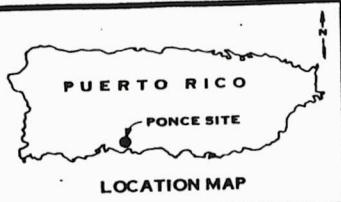
JOB NO. GS3223

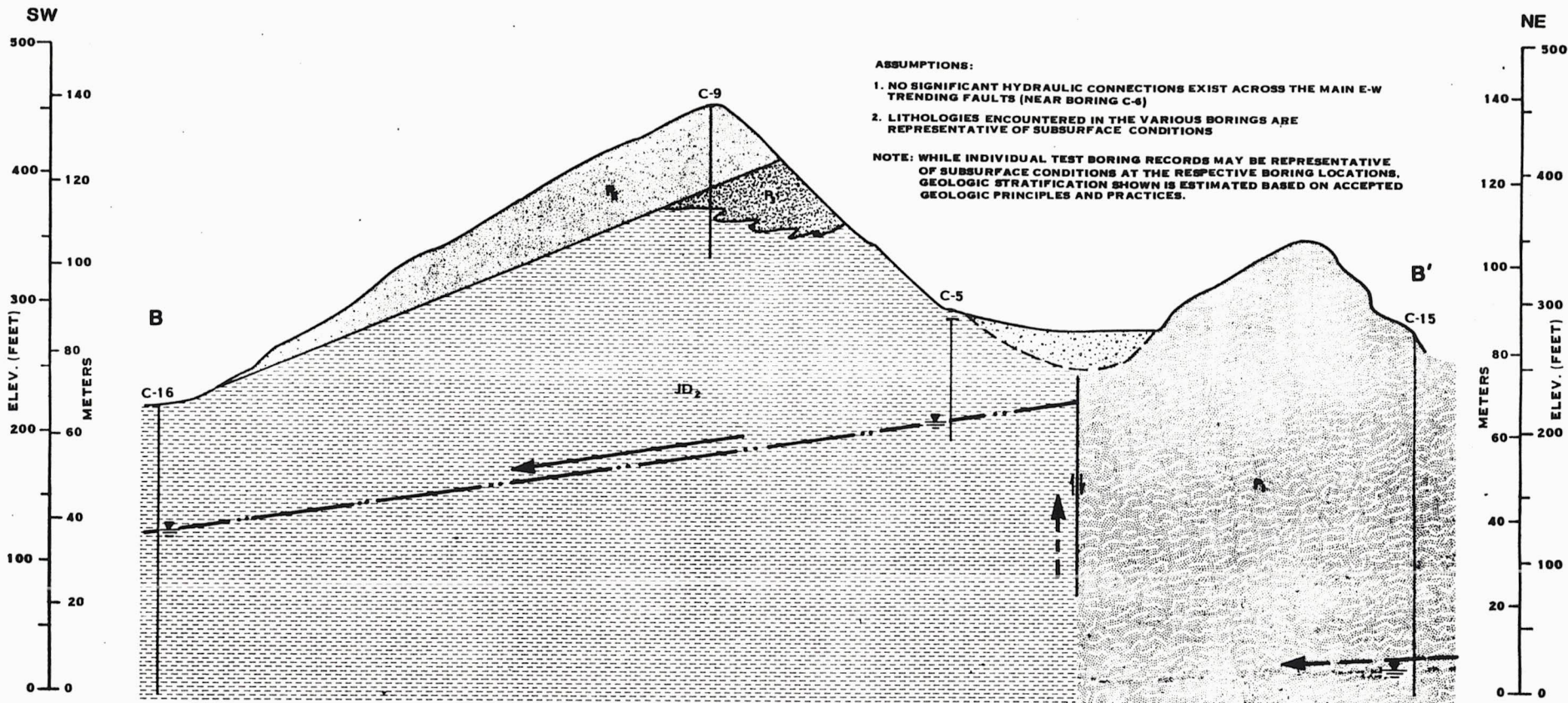
FIGURE 9











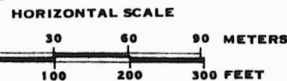
ASSUMPTIONS:

1. NO SIGNIFICANT HYDRAULIC CONNECTIONS EXIST ACROSS THE MAIN E-W TRENDING FAULTS (NEAR BORING C-6)
2. LITHOLOGIES ENCOUNTERED IN THE VARIOUS BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS

NOTE: WHILE INDIVIDUAL TEST BORING RECORDS MAY BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS, GEOLOGIC STRATIFICATION SHOWN IS ESTIMATED BASED ON ACCEPTED GEOLOGIC PRINCIPLES AND PRACTICES.

LEGEND

- FILL WASTE WITH COVER FILL FROM SURROUNDING HILLS
- P₁ ORANGE, FOSSILIFEROUS NODULAR LIMESTONE WITH OCCASIONAL CLAYEY BEDS.
- P₂ GREY TO BROWNISH - ORANGE HARD AND BRITTLE BEDS OF FOSSILIFEROUS LIMESTONE AND CRYSTALLINE LIMESTONE AT BASE; GRADES UPWARD INTO INTERBEDDED CALCARENITE / SILTSTONE.
- P₃ HOMOGENEOUS LIGHT GREY AND BROWN CRUMBLY SOFT CALCAREOUS SILT. PINCHES OUT TO THE SOUTHWEST.
- JD₂ LIGHT GREY CLAYEY AND SANDY SILT OF VARIABLE BED THICKNESS.
- POTENTIOMETRIC SURFACE
- GENERALIZED DIRECTION OF GROUND - WATER FLOW (DASHED WHERE INFERRED)
- FAULT
- STABILIZED WATER LEVEL MEASURED IN PIEZOMETER



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CECOS INTERNATIONAL, INC. BUFFALO, NEW YORK			
PONCE WASTE FACILITY HYDROGEOLOGIC CROSS SECTION B - B'			
	BY	DATE	JOB NO. GS3223
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			FIGURE 10